

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A food irradiation apparatus comprising:

an irradiation chamber sized to receive a quantity of food typically encountered at or near the point of consumption;

a first x-ray source which generates a first radiation beam;

a rotating support disposed in proximity to the first x-ray source, wherein rotation of the support causes successive portions of food supported by the support to be exposed to the first radiation beam.

Claim 2 (previously presented): The apparatus of claim 1 wherein the first x-ray source is disposed axially in relation to the food.

Claim 3 (previously presented): The apparatus of claim 1 further including a second x-ray source disposed on a side of the support opposite from the first x-ray source.

Claim 4 (previously presented): The apparatus of claim 3 wherein the support rotates about an axis of rotation and the first and second x-ray sources are equidistant from the axis of rotation.

Claim 5 (previously presented): The apparatus of claim 3 wherein

the support is disposed between first x-ray source and the food;

the second x-ray source is disposed in proximity to the food such that rotation of the support causes successive portions of the food to be exposed the second radiation beam.

Claim 6 (currently amended): ~~The apparatus of claim 5~~ A food irradiation apparatus comprising:

a first x-ray source which generates a first radiation beam

a rotating support disposed in proximity to the first x-ray source, wherein rotation of the support causes successive portions of food supported by the support to be exposed to the first radiation beam, wherein the support is disposed between first x-ray source and the food;

a second x-ray source disposed on a side of the support opposite from the first x-ray source, wherein the distance between the second x-ray source and the support is adjustable.

Claim 7 (currently amended): The apparatus of claim 1—A food irradiation apparatus comprising:

a first x-ray source which generates a first radiation beam;

a rotating support disposed in proximity to the first x-ray source, wherein rotation of the support causes successive portions of food supported by the support to be exposed to the first radiation beam, wherein the support rotates about an axis of rotation and the distance between the axis of rotation and the first x-ray source is adjustable.

Claim 8 (previously presented): The apparatus of claim 1 wherein the first x-ray source is disposed radially in relation to the food.

Claim 9 (previously presented): The apparatus of claim 8 wherein the support rotates about an axis of rotation and the distance between the first x-ray source and the axis of rotation is adjustable.

Claim 10 (previously presented): The apparatus of claim 8 wherein the support rotates about an axis of rotation and the relative position of the food and the first radiation source in a direction parallel to the axis of rotation is adjustable.

Claim 11 (previously presented): The apparatus of claim 1 further including means for determining a dimension of a container supported by the support.

Claim 12 (currently amended): An irradiation apparatus comprising:

an irradiation chamber for receiving an object to be irradiated, the chamber having a volume less than about two cubic feet;

a rotating support for supporting an the object to be irradiated, which support rotates about an axis of rotation; and

a first source of ionizing radiation for irradiating the object, the source being disposed axially in relation to the object, wherein rotation of the support improves a uniformity of the radiation dose received by the object.

Claim 13 (previously presented): The apparatus of claim 12 wherein the ionizing radiation is x-radiation and the object is food.

Claim 14 (previously presented): The apparatus of claim 12 wherein the radiation source is offset from the axis of rotation.

Claim 15 (previously presented): The apparatus of claim 12 further including a second source of ionizing radiation disposed axially in relation to the support, offset from the axis of rotation, and on a side of the support opposite from the first source of ionizing radiation.

Claim 16 (currently amended): ~~The apparatus of claim 12 further including~~ An irradiation apparatus comprising:

a rotating support for supporting and object to be irradiated, which support rotates about an axis of rotation;

a first source of ionizing radiation for irradiating the object, the source being disposed axially in relation to the object, wherein rotation of the support improves a uniformity of the radiation dose received by the object;

means for varying a position of the first radiation source relative to the support in at least one of an axial or radial direction.

Claim 17 (currently amended): ~~The apparatus of claim 12 further including~~ An irradiation apparatus comprising:

a rotating support for supporting an object to be irradiated, which support rotates about an axis of rotation;

a first source of ionizing radiation for irradiating the object, the source being disposed axially in relation to the object, wherein rotation of the support improves a uniformity of the radiation dose received by the object;

a sensor for determining a dimension of the object.

Claim 18 (currently amended): A batch irradiation apparatus comprising:

an irradiation chamber sized to receive a quantity of food typically encountered at or near the point of consumption;

a door which provides access to the irradiation chamber for selectively inserting and removing ~~an object~~the food;

an x-ray source which generates a radiation beam that impinges on a portion of the ~~object~~food;

means for varying the relative positions of the x-ray source and the ~~object~~food so that the radiation beam impinges on successive portions of the ~~object~~food.

Claim 19 (currently amended): The apparatus of claim 18 further including

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a second x-ray source which generates a second radiation beam that impinges on a portion of the ~~object~~food; and

means for varying the relative positions of the radiation source and the object so that the second x-ray beam impinges on successive portions of the ~~object~~food.

Claim 20 (previously presented): The apparatus of claim 18 wherein the means for varying includes a rotating platter.

Claim 21 (currently amended): The apparatus of claim 18 wherein ~~the object comprises food and~~ the apparatus includes an operator input device for identifying the type of food.

Claim 22 (previously presented): A method of irradiating a quantity of food typically encountered in the home comprising:

inserting the quantity of food into an irradiation chamber through an access port;

turning on an x-ray source;

varying the relative positions of the x-ray source and the food so that successive portions of the food are exposed to the x-rays generated by the x-ray source;

turning off the x-ray source; and

removing the quantity of food from the irradiation chamber through the access port.

Claim 23 (previously presented): The method of claim 22 wherein the step of varying includes rotating the food about an axis of rotation.

Claim 24 (previously presented): The method of claim 22 wherein the x-ray source is disposed axially in relation to the food.

Claim 25 (previously presented): The method of claim 22 wherein the x-ray source includes a first and second x-ray sources and the food is disposed between the sources.

Claim 26 (previously presented): The method of claim 23 wherein the x-ray source is disposed radially in relation to the food.

Claim 27 (currently amended): ~~The method of claim 22 further including~~ A method of irradiating a quantity of food typically encountered in the home comprising:

inserting the quantity of food into an irradiation chamber through an access port;

determining a dimension of the food; and

adjusting the relative positions of the food and the x-ray source based on said dimension;

turning on an x-ray source;

varying the relative positions of the x-ray source and the food so that successive portions of the food are exposed to the x-rays generated by the x-ray source;

turning off the x-ray source; and

removing the quantity of food from the irradiation chamber through the access port.

Claim 28 (new): The apparatus of claim 1 wherein the quantity of food is 1kg of red meat.

Claim 29 (new): The apparatus of claim 1 wherein the x-ray source comprises an x-ray tube including a cathode and an anode.

Claim 30 (new): The apparatus of claim 6 further including an irradiation chamber sized to receive a quantity of food typically encountered at or near the point of consumption and wherein the x-ray source comprises an x-ray tube having a cathode and an anode.

Claim 31(new): The apparatus of claim 12 wherein the radiation source comprises an x-ray tube including a cathode and an anode.

Claim 32 (new): The apparatus of claim 17 further including an irradiation chamber sized to receive a quantity of food typically encountered at or near the point of consumption.

Claim 33 (new): The apparatus of claim 18 wherein the x-ray source comprising an x-ray tube including a cathode and an anode.

Claim 34 (new): The apparatus of claim 22 wherein the x-ray source comprises an x-ray tube having a cathode and an anode.

Claim 35 (new): A food irradiation apparatus comprising:

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a first x-ray source which generates a first radiation beam;

a rotating support disposed in proximity to the first x-ray source and sized to support a quantity of food typically encountered at or near the point of consumption, wherein rotation of the support causes successive portions of food to be exposed to the first radiation beam, and wherein the apparatus irradiates the quantity of food in a timeframe similar to that for conventional microwave cooking.

Claim 36 (new): The apparatus of claim 35 wherein the quantity of food is 1kg of red meat and the timeframe is about 5 minutes.

Claim 37 (new): An irradiation apparatus comprising:

a rotating support sized to support a quantity of food typically encountered at or near the point of consumption, which support rotates about an axis of rotation; and

a first source of ionizing radiation for irradiating the object, wherein rotation of the support improves a uniformity of the radiation dose received by the object, and wherein the apparatus irradiates the quantity of food in a timeframe similar to that for conventional microwave cooking.

Claim 38 (new): The apparatus of claim 35 wherein the quantity of food is 1kg of red meat and the timeframe is about 5 minutes.
